How to make Changes to the County Road Inventory using the CRI Web Application

Thank you for choosing the County Road Inventory (CRI) Web Application to submit changes to the TxDOT Roadway Inventory. Please take time to read all documentation and familiarize yourself with both the application itself and criteria before performing any 'markup' within the application.

In accompany with this instructional document, TxDOT has provided tutorial videos both About the Application and How to Markup and Submit Updates within the application.

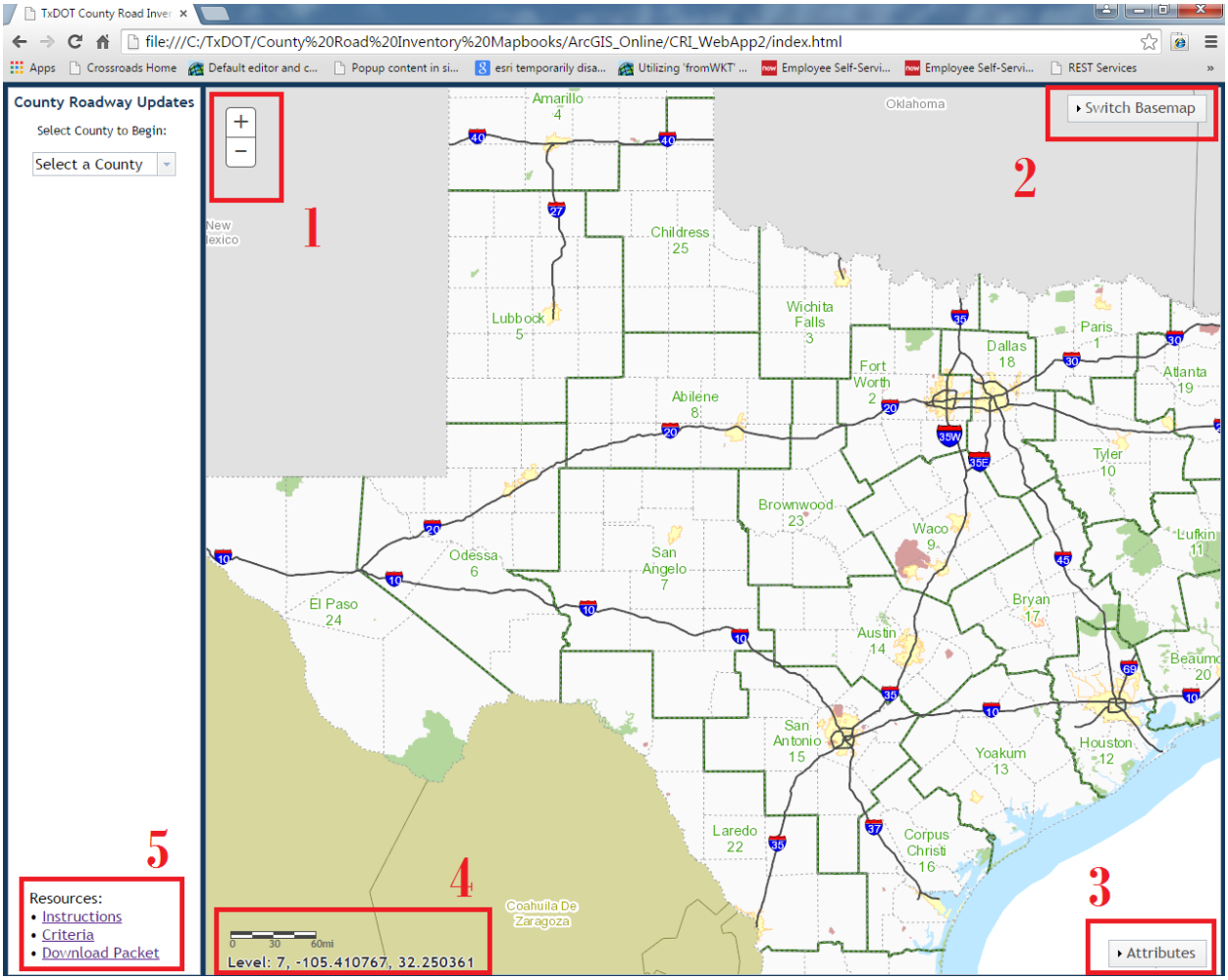
The process of reviewing and submitting changes to the inventory begins and ends at the user's discretion. All changes are submitted by drawing road segments within the updates *layer* in the map (further detail below). As the user marks these changes they are instantly saved to the update *layer* unless deleted by the user. This means a user can begin the review and markup road segments, close the application, and return to continue the process at any time.

When the review and markup is complete, only the changes created within the updates *layer* will be considered for the submission for the county. Any changes not represented by a road segment in the updates *layer* will not be received by TxDOT and will not be part of the submission.

The Application Layout:

As shown in Figure 1, the application has many tools to help the user navigate the map and reference information to ensure accurate changes are submitted in the markup.

Figure 1



1. Zoom within the Map. Press the "+" button to zoom in a *Level* closer and the "–" button to zoom out a *Level* further away. This functionality is also performed by scrolling the wheel on the computer mouse. The current zoom *Level* is displayed in the lower left corner of the map (Red Box 4). The closer the user zooms in, the higher the zoom level number.
2. Switch Basemaps in the map. The basemap is the *background* image displayed in the map. Click the "Switch Basemap" box to open the gallery window and choose between basemaps.
   By default when you open the application, the TxDOT Statewide Planning Map is the displayed basemap. As the user zooms in the map the basemap will display more

details for the location and more information to reference when performing the markup. Another primary basemap to reference is the 'Imagery' basemap.

3. Attributes window to display information about a County Road currently in the inventory. This window will only be populated when the user has chosen a county to edit and directly clicks on a roadway currently in the inventory.
4. Map Scale, Zoom Level, and Latitude/Longitude location reference for the map. This information updates as the user zooms to an alternative level and moves the cursor on the map. The Latitude/Longitude information displays the location of the cursor on the map.
5. Resources documents which define the criteria for a County Road within the TxDOT Inventory and Instructions for performing an inventory markup. Also available is a link to the county's Download Packet originally sent to the County Judge. The download packet contains additional resources for viewing the current roadway inventory.

Attribute Codes (Data Dictionary):

When making updates to the inventory via the updates *layer* within the application, each road contains a series of attributes which describe the roadway. Those attributes are populated with specific types of information as described in Figure 2.

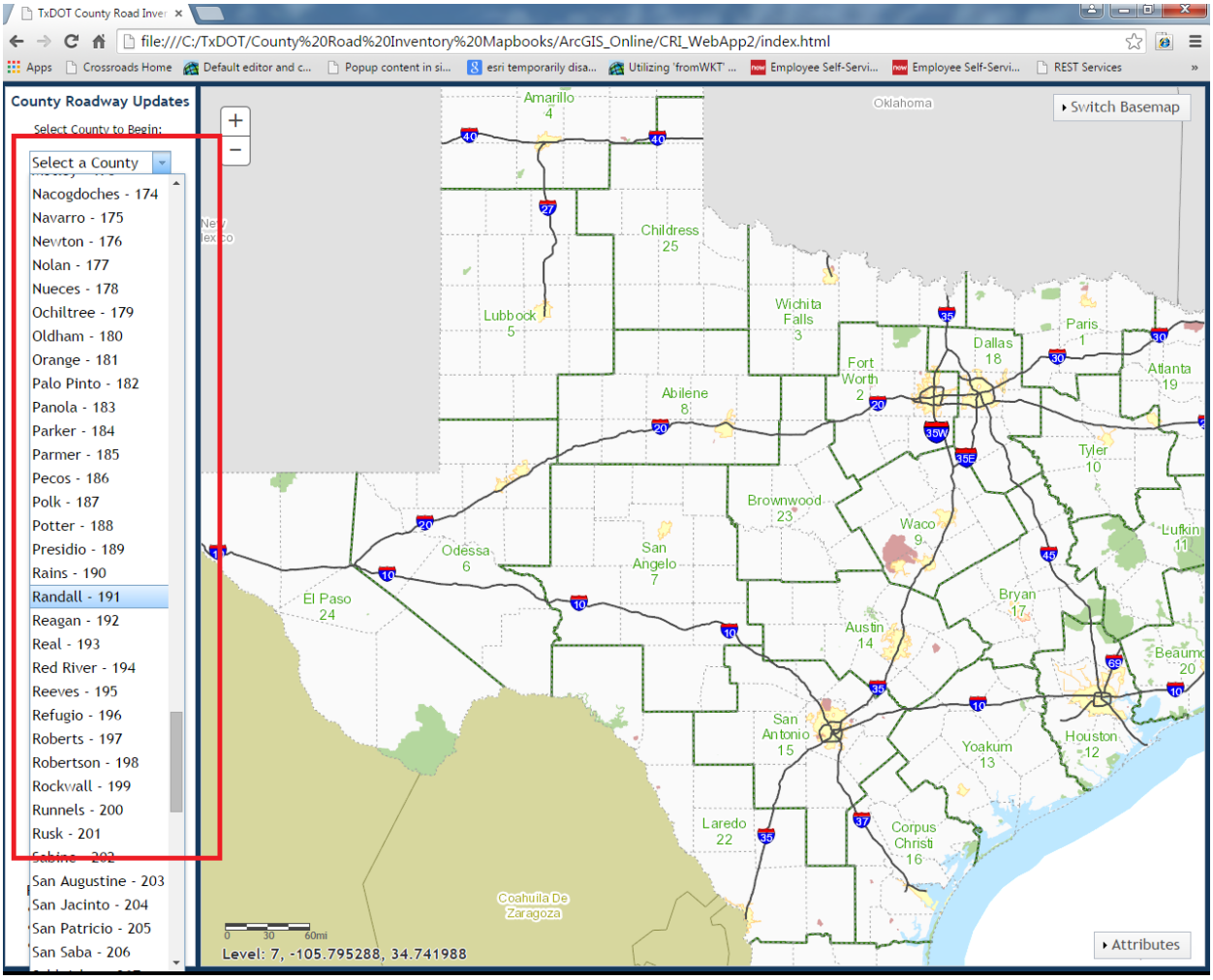
Figure 2

Field Name	Value Type	Acceptable Values	Description
Update Type	Text	Add Road	Add a new road to the inventory
		Remove Road	Remove an existing road from the inventory
		Update Road Attributes or Alignment	Change a road attribute or alignment
Length (Miles)	Decimal Number	0-999.999	The length of the road in miles. This is populate automatically and is for the user's reference.
Surface Type	Integer Number	10	Dirt/Natural Surface
		32	Gravel Surface
		51	Paved Surface
		61	Concrete Surface
Number of Lanes	Integer Number	0-12	The number of lanes the road has. A typical 2 way county road is 2 lanes.
Highway Design	Integer Number	1	One Way road. Traffic can legally only travel one direction.
		2	Two way road. Traffic can legally travel both directions.
		3	Boulevard. A two way road divided by a median.
Full Street Name	Text	*The Road Name in Full*	The complete road name. This is how the road is labelled within the map application.
Comment	Text	*Any user comment*	Any comment to provide further detail about the road change being marked up.

How to make Changes:

Once the user has been familiarized with the map and application, it is time to begin editing. Start by choosing the county to edit from the "Select County to Begin:" dropdown found in the upper-left of the application as shown in Figure 3.

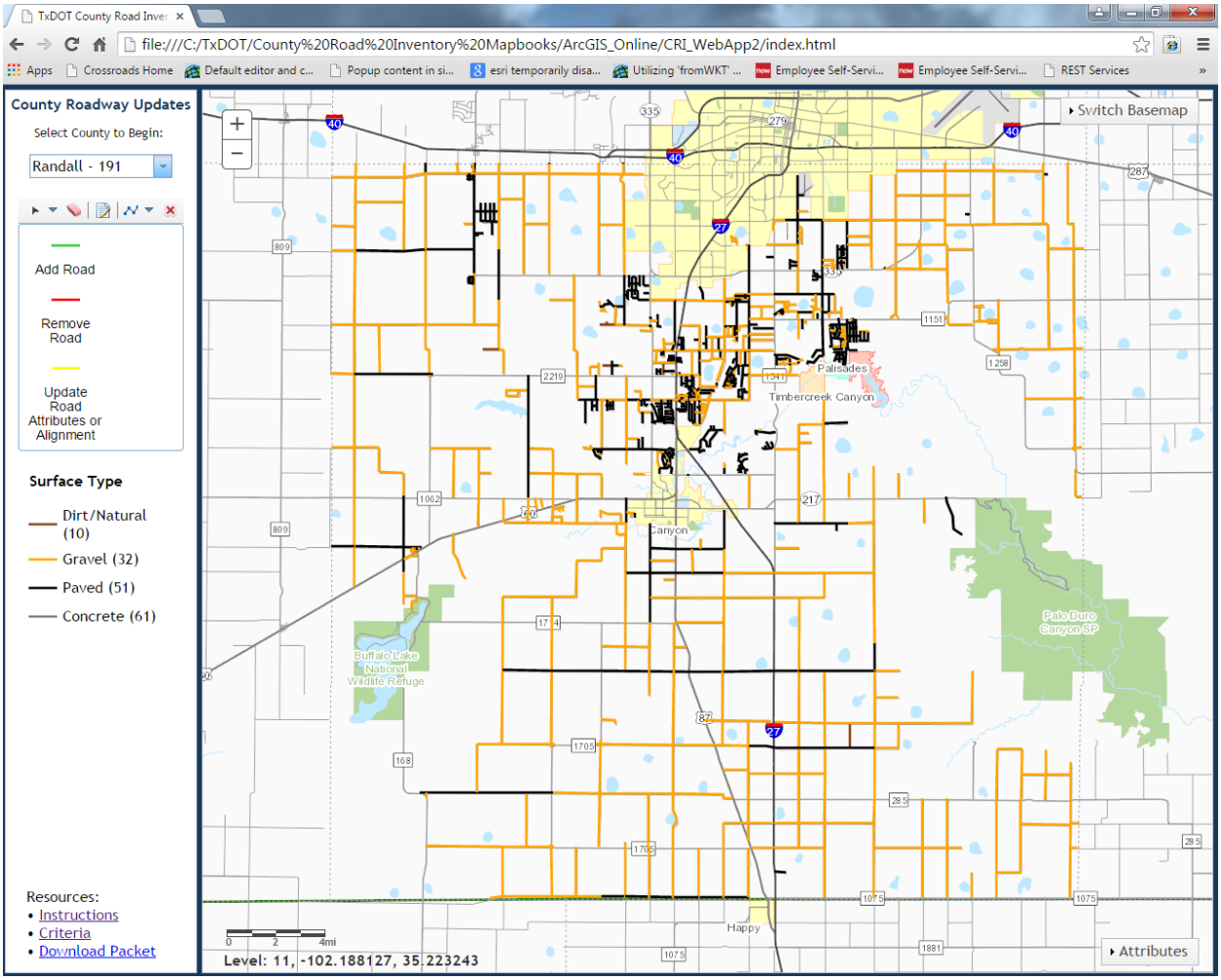
Figure 3



When a county is selected the map will automatically zoom to the chosen county. The map will also then display 2 roadway *layers*. These *layers* are (1) the current roadway inventory for the selected county to edit and (2) the updates/changes *layer* the user will use to markup the map as shown in Figure 4. Notice the Legend on the left side panel is populated to represent the current inventory drawn by its' surface type attribute.

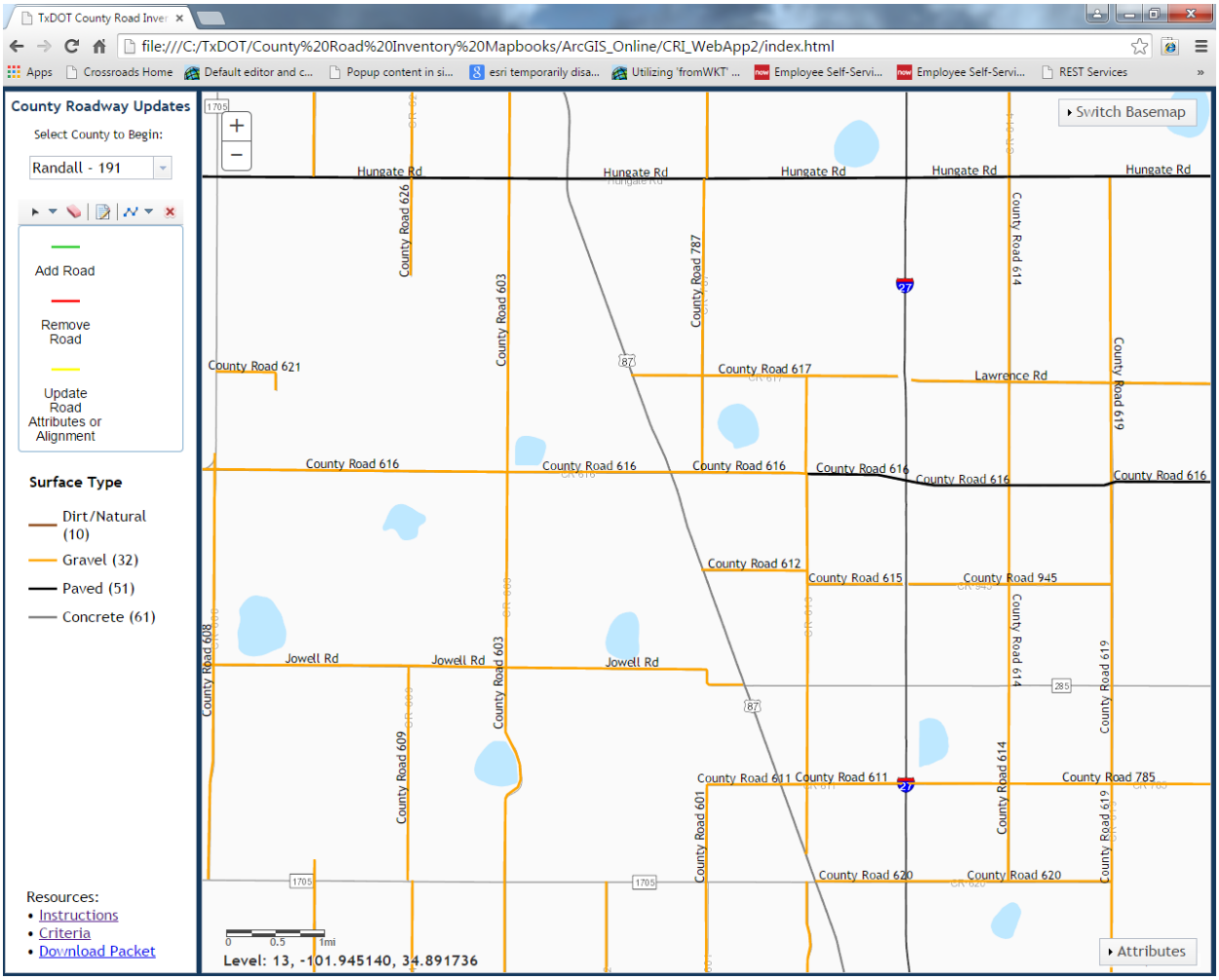
Both the current inventory and the updates layer are zoom level dependent. The user must be zoomed into **zoom level 11 or higher** for these layers to display. If the layers don't immediately appear when a county is chosen to edit, check the zoom level.

Figure 4



Navigate the map and review the current inventory. Zoom and pan around the map to ensure accuracy of the current inventory *layer*. As the user navigates the map, the roads attain labels of their current street name as in the TxDOT Inventory. Immediate visual inspection will show the user the name and the surface type for the road as described in the legend and shown in Figure 5.

Figure 5



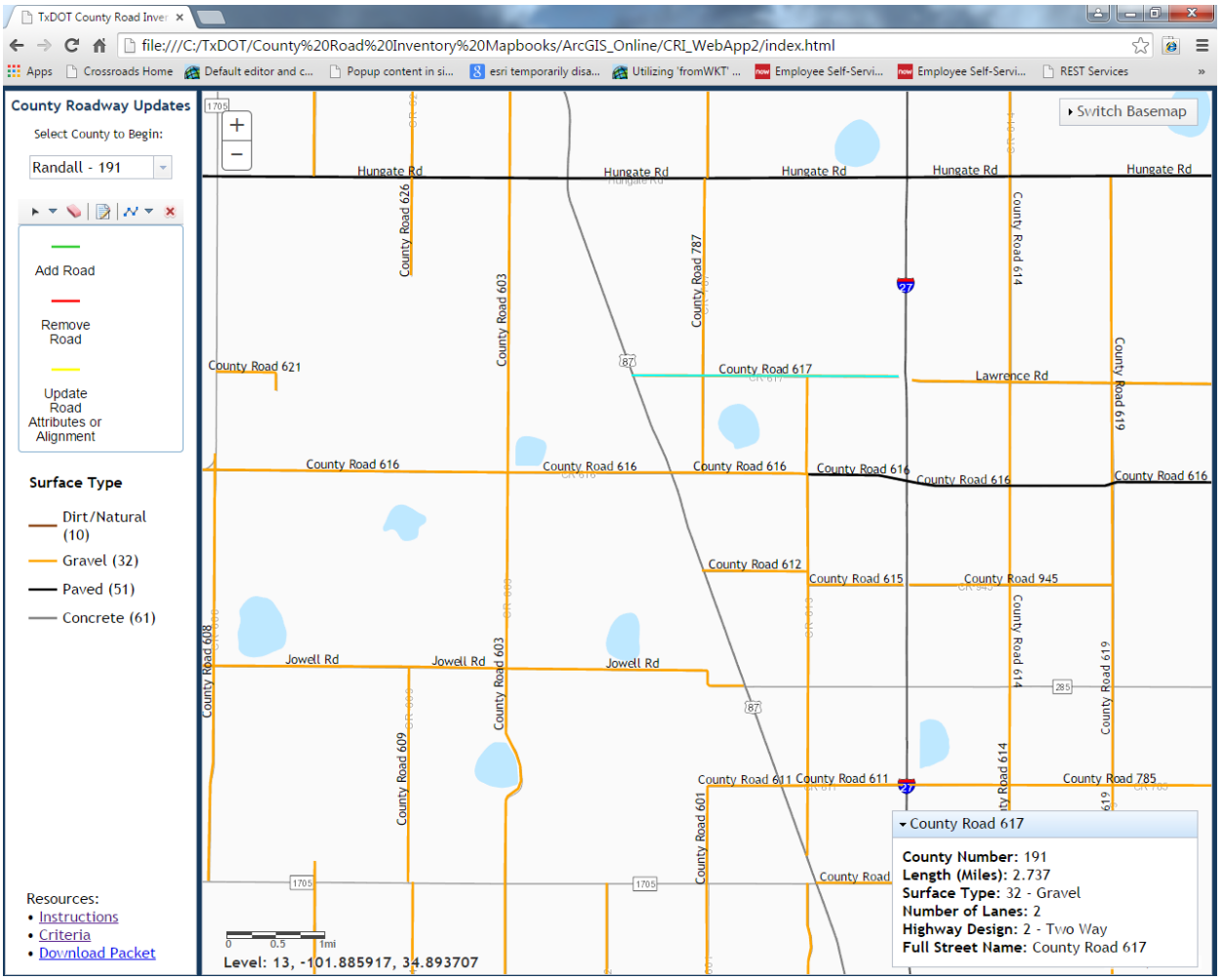
Both the current inventory and updates layers are clickable with the mouse cursor. If the user moves the cursor over a road the ‘arrowhead’ pointer will become a ‘hand and finger’ pointer and the road can be clicked. When the user clicks a road currently in the inventory, the Attributes window, described in Figure 1, opens and displays the descriptive attributes for the roadway segment (Figure 6).

The user will find that the road name labels are clickable too. Clicking a label will select it and reveal editing options for the clicked label. The user can click anywhere on the map to un-select the label or choose to temporarily alter the label. If the label is altered, clicking any roadway template twice will clear the label editing options. Any zooming or panning operations will clear the temporary edited display of the label. Altering a label may prove beneficial if a darker colored basemap is being used.

As the user reviews the current inventory, he/she should click on the roads within the inventory to ensure their attributes are accurate. Valid attribute values are described above in the Attribute Codes section of this document. If a road in the inventory is both drawn (aligned) correctly

within the map and has **all** of the correct attributes there is no change needed and the user is to do nothing.

Figure 6

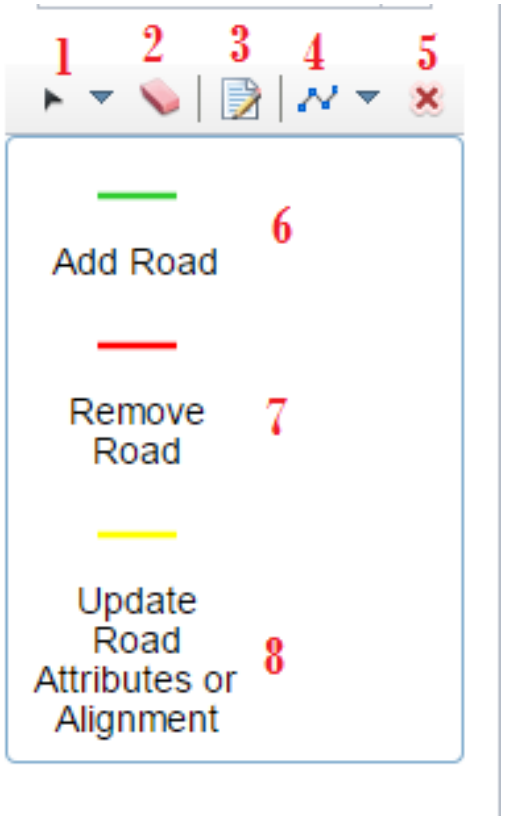


As the user inspects the current inventory, he/she may discover inaccuracies. The user will *markup* the map to identify these inaccuracies using the *templates* described in Figure 7. These templates access the updates/changes *layer* and provide the user the ability to geographically identify the inaccuracies by drawing within the map. In other words, the templates allow the user to draw a roadway segment within the updates/changes *layer*.

After road segments have been drawn using the templates, the user may interact with their road segments in bulk using the tools in the toolbar (Figure 7).

Take time to explore the templates and tools. Practice editing the updates *layer* as a means to ensure accuracy while editing. Be sure to delete any road segments created for practice purposes as the road segments within the *layer* at the commencement of the markup will be considered the submission for the county.

Figure 7



1. New Selection. When clicked, this pointer allows the user to click-n-drag within the map to create a rectangle. Upon release, the tool 'selects' all the existing road segments which exist in the updates *layer*. When a segment within the updates *layer* is selected, other tools within the toolbar (Red numbers 1-3, 5) become available to interact with the selected segment.
2. Clear Selection. If any number of update layer segments are selected by the Select Pointer, this tool will clear them; they will no longer be selected and the other tool will no longer be available.
3. Attributes window. If any number of updates *layer* segments are selected by the Select Pointer, this tool will open their attribute window and allow the user to alter any of the attribute fields which describe the segment(s). The window also contains a button which stands as an alternative to the Erase Segment tool in deleting the segment.
4. Drawing Tool (Polyline or Freehand Polyline). This tool becomes available when the user clicks a *template* to add a road segment to the updates *layer*. It provides a dropdown for the user to choose between drawing a segment by clicking point-by-point or freehand. Freehand requires the user to click and hold the beginning of a segment, move the cursor to draw the alignment of the road, and then release the mouse button at the end of the road segment.

5. Delete tool. If any number of updates *layer* road segments are selected by the Select Pointer, this tool will delete them, and they will not be submitted with the markup. This tool is beneficial when the user has marked up a change which was incorrect and the user would like to no longer include it.
6. Add Road template. When clicked, this template will enable the cursor to draw a road segment to represent a new roadway in the map which is to be added to the TxDOT inventory.
7. Remove Road template. When clicked, this template will enable the cursor to draw a road segment in the map to represent a roadway, or portion of a roadway, to be removed from the TxDOT inventory.
8. Update Road Attributes or Alignment template. When clicked, this template will enable the cursor to draw a road segment in the map to represent a roadway, or portion of roadway, to be updated in the TxDOT inventory.

If a county road is missing from the inventory the user will utilize the Add Road template to create it. Begin by observing the entire road location to ensure that a portion of the road does not already exist which would require the segment to be an Update to the alignment as the road should be extended.

Click the Add Road template and move the cursor to the beginning of the roadway on the map. Single click to begin drawing the roadway and then consciously continue to draw the entire extent of the road as it truly exists by single clicking to create points along the road segment (Figure 8). These points connect to create a road segment which spatially represents the new road. The Imagery Basemap is extremely helpful when drawing new roads as, most often, the user can visually see the road on the ground and ensure an accurate alignment (Figure 9). At the end of the road double click the mouse to finish drawing.

At any point in time during drawing, the user can cancel the road being drawn by clicking the Add Road template again.

When the user is finished drawing the new road the Attribute window will popup. The user is then to populate **all** the fields listed to accurately describe the roadway by typing into the boxes the valid values for each field. The valid values are listed in the Attribute Codes section of this document. When the fields are populated, the user can click anywhere within the map, not within the Attribute window to apply the attributes. The drawn road and attributes are instantly saved. The user can undo, redo, or delete these edits at his/her will.

Figure 8

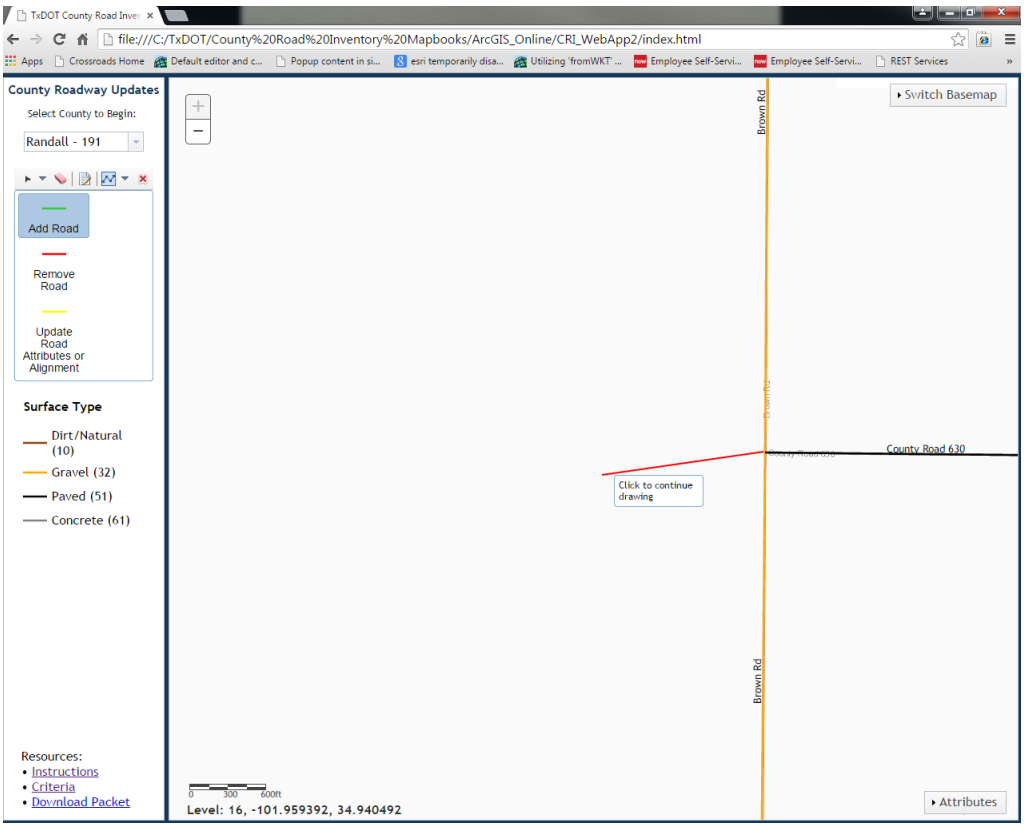


Figure 9

The user can alter any update *layer* road segment by single clicking the road segment. A single click on the segment will cause a dotted box to appear around the road segment as well as open the Attribute window to change any attributes (Figure 10). The dotted box also permits the user to stretch or shrink the drawn road segment. A second single click on the road segment itself (with the dotted box present) will cause the points of the road segment to appear (Figure 11). These points can be single clicked and dragged to alter the drawn alignment of the segment.

Figure 10

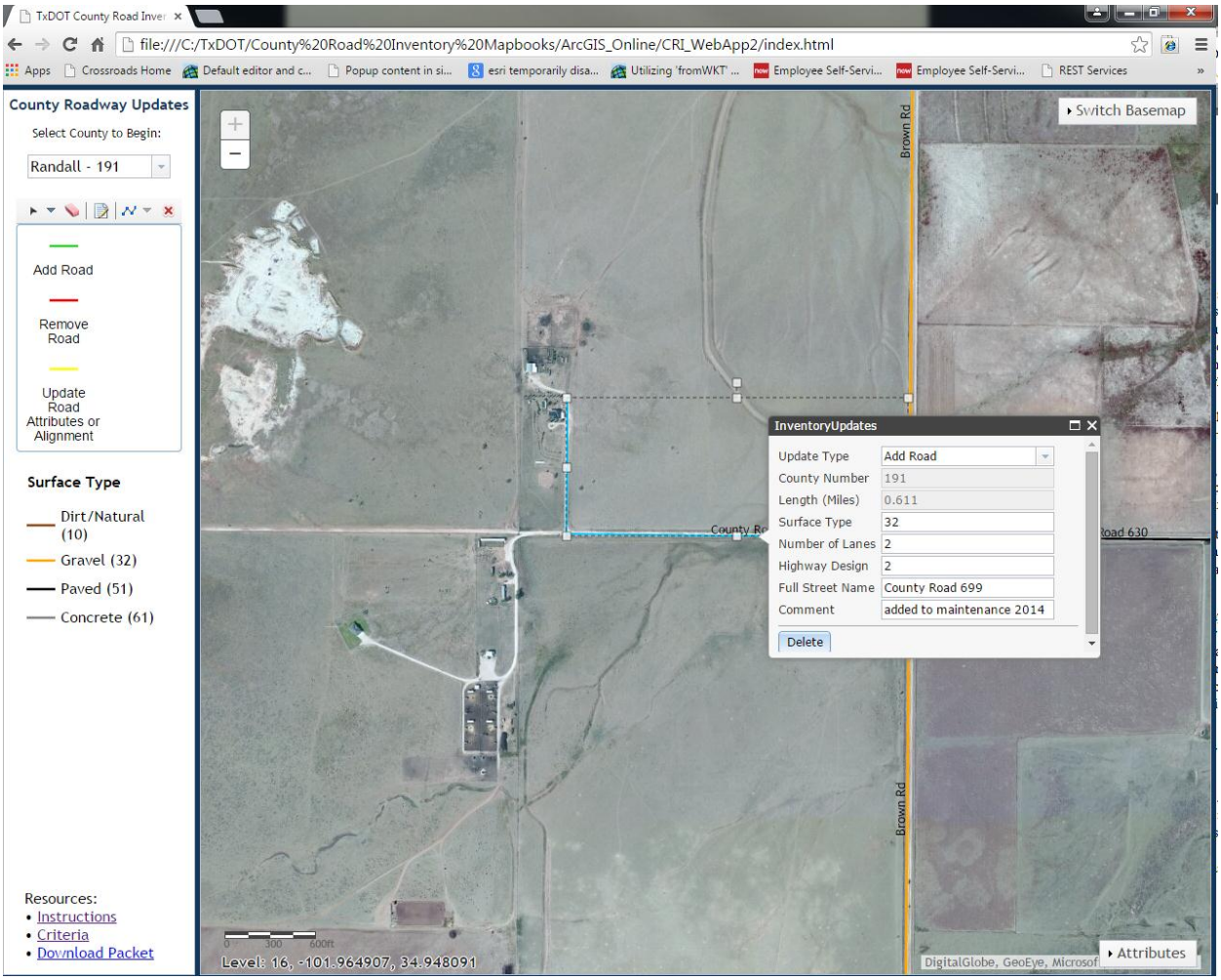
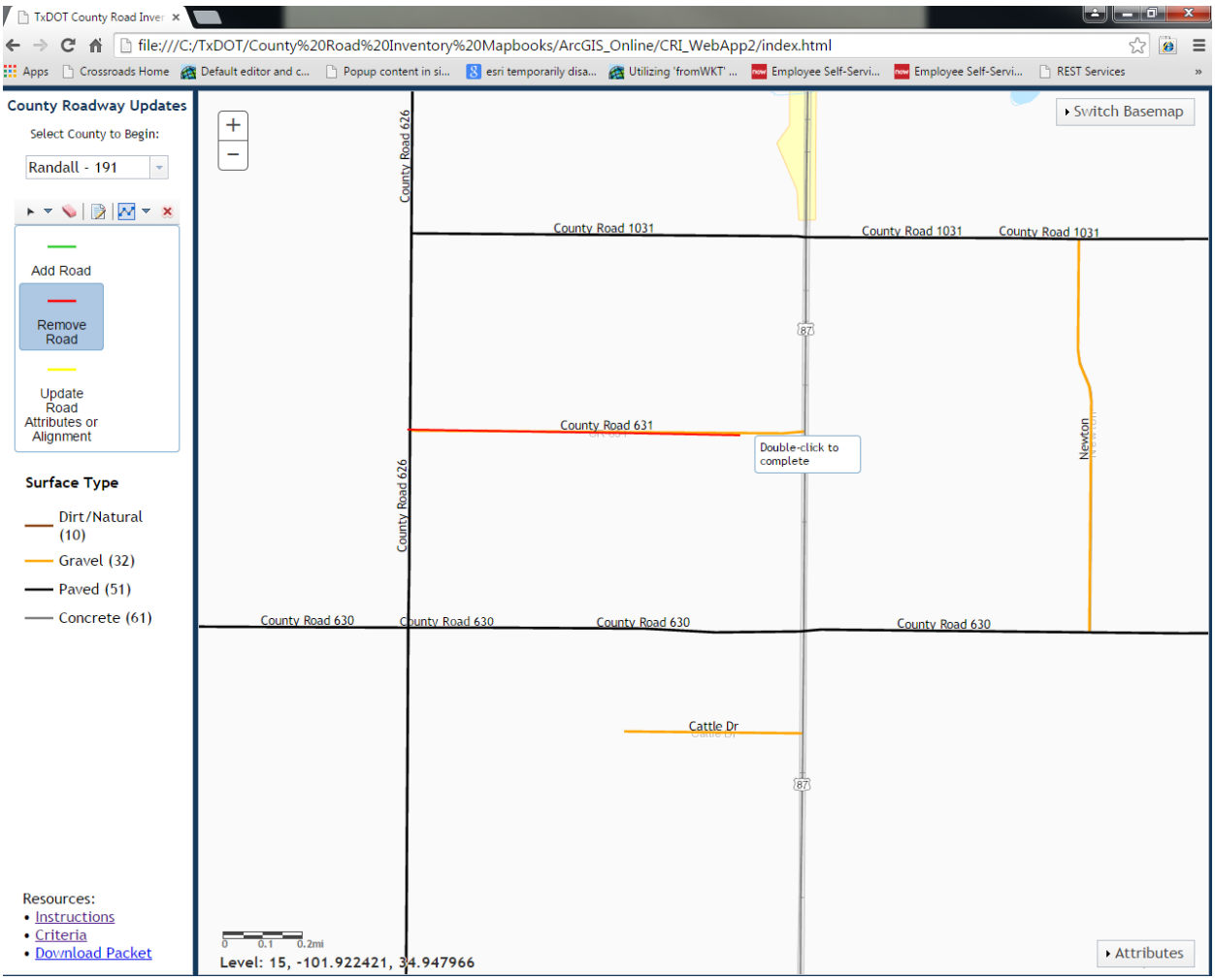


Figure 11

To markup a road which should be removed from the County Road Inventory, begin by clicking the Remove Road template. Single click the end of the road and proceed to draw a road segment on top of the entirety of the inventory roadway to be removed (Figure 12). Double click at the opposite end to finish drawing. Within the Attribute window, please provide any details (dates, purpose, etc.) surrounding the removal of the roadway in the **Comments** field if they are known. This is the only necessary field for marking up road removals.

Figure 12



To update/change a descriptive attribute for a roadway in the inventory, begin by clicking the Update Road Attribute or Alignment template. Draw road segment on top of the inventory roadway to represent the portion of the road which requires the attribute change (Figure 13). If an entire road requires the update, draw the road segment to cover the complete length of the road.

Double click to end drawing the update road segment. When the Attribute window appears, populate **only the fields which need updating** with the updated value as well as any Comments (Figure 14).

Figure 13

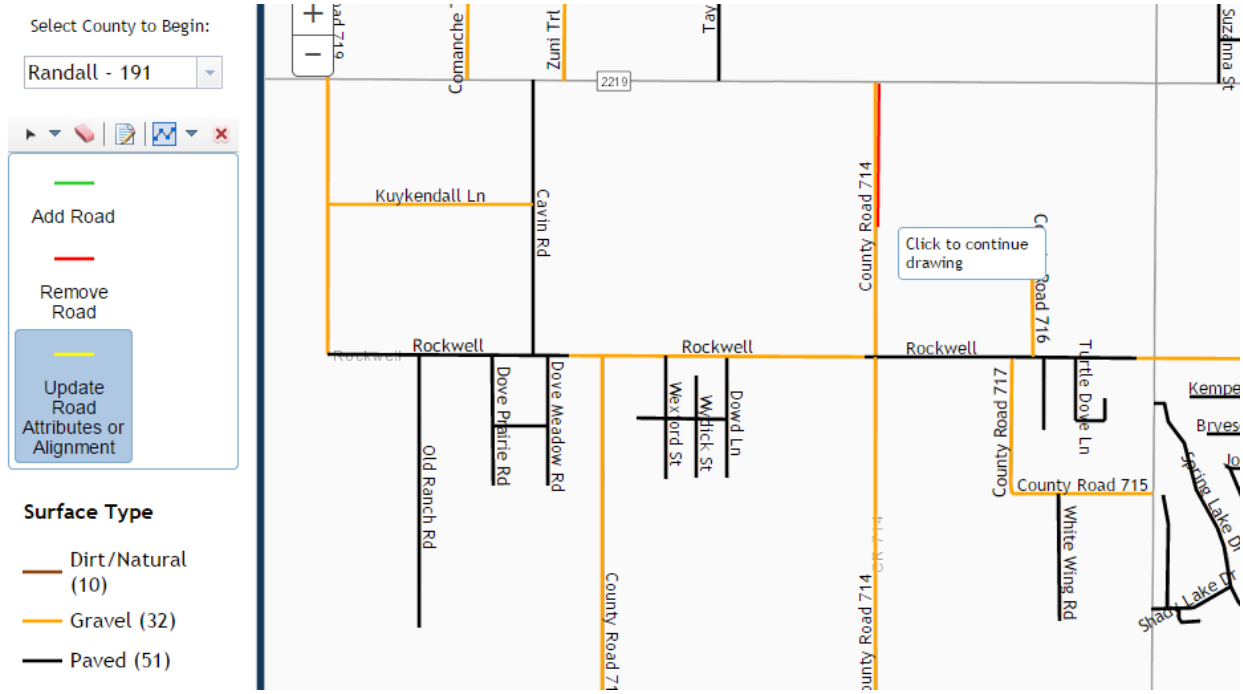
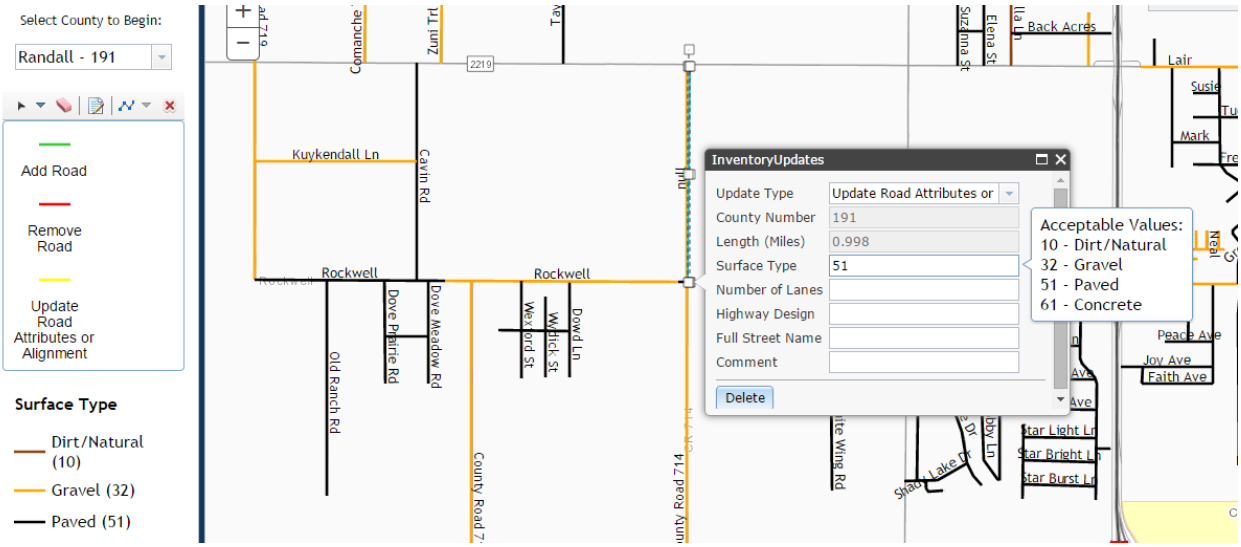


Figure 14



To update/change the extent or alignment of an existing roadway within the inventory, begin by clicking the Update Road Attributes or Alignment template. Click to begin drawing on the map at the start of the road. Disregard the road as drawn in the roadway inventory and instead, draw the road as it supposed to be aligned (Figure 15). To shorten or extend a road, the user should draw on top of the current inventory as to represent the actual extent (Figure 16). For any alignment or extent updates, the user should populate the **Comment** field within the Attribute window to explicitly state that the alignment has been shortened, lengthened, and/or re-aligned.

The user should also populate **any other fields which need to be updated** with the alignment; **multiple road segments for attributes versus alignment updates are not necessary**.

Figure 15

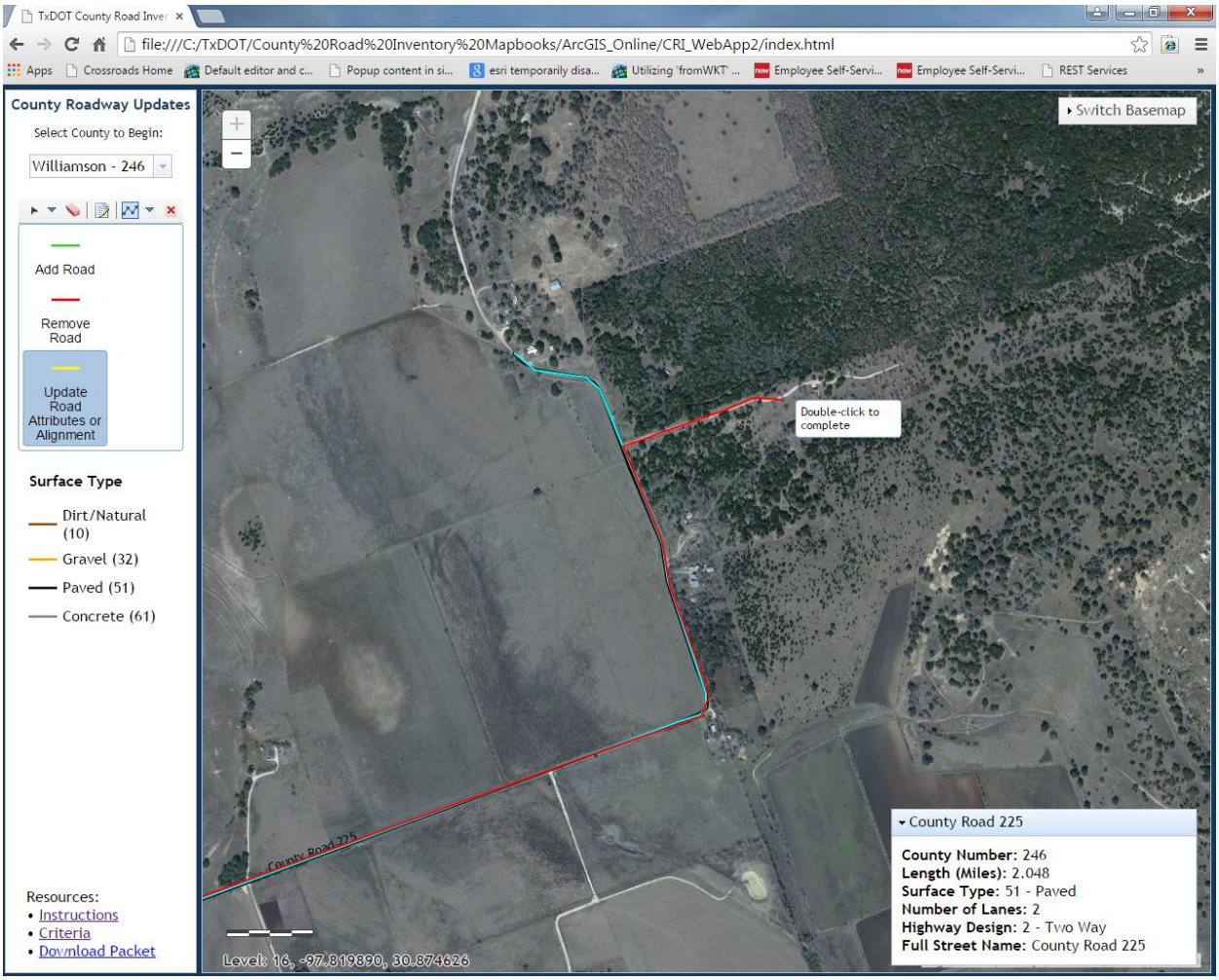
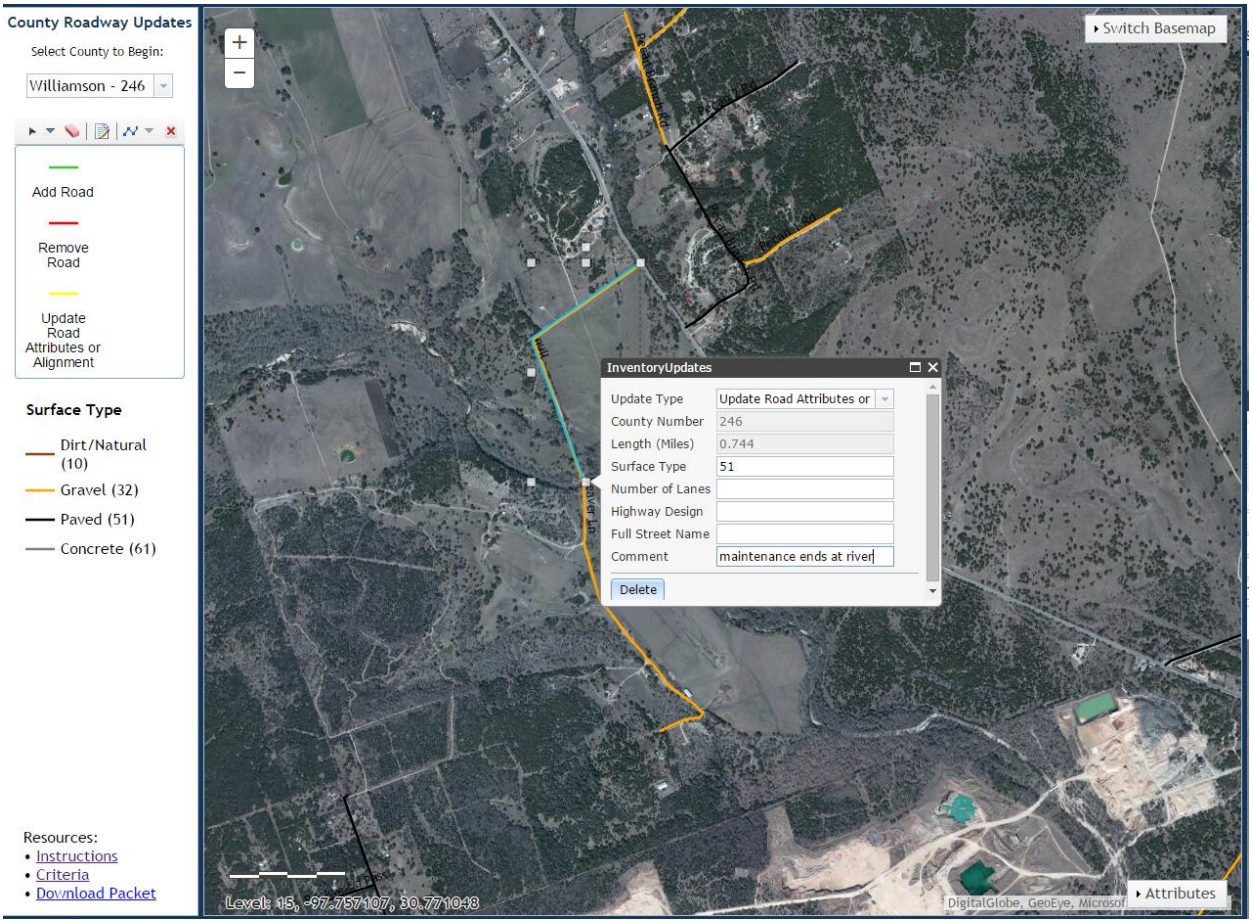


Figure 16



Commencement, Questions, and Issues:

Upon completion of the inventory review and markup, we request the user to send an email to Adam Breznicky (contact information below) stating your county which has been completed. At the time of completion, the update *layer* will be reviewed and the changes which meet the inventory criteria will be implemented to update the TxDOT County Road Inventory.

Thank you again for using the CRI Web Application to submit changes to the TxDOT County Road Inventory. If you would like to report any bugs or issues, or have any questions which need clarification of the procedures, please contact the Transportation Programming and Planning Divisions' Data Management Staff at:

Adam Breznicky – GIS Analyst/CRI Project Coordinator - adam.breznicky@txdot.gov (512)486.5020

Michael Zugelder – Data Management Supervisor – michael.zugelder@txdot.gov (512)486.5086